CLAIMS

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What is claimed is:

1. A storage network appliance comprising:

a TCP/IP router for routing block level storage requests through a TCP/IP network communication medium; and

10   a cache memory for caching storage data blocks accessed by the block level storage requests.

2. The appliance of claim 1 further comprising:

a command and response processor coupled to the router for interpreting block

15 level storage requests routed through the router and coupled to the cache memory for caching data identified in the interpreted block level storage requests.

3. The appliance of claim 2 wherein the block level storage requests are iSCSI protocol commands and responses.

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4. The appliance of claim 3 wherein the command and response processor is a SCSI command and response processor.

5. The appliance of claim 2 wherein the command and response processor is

25 adapted to snoop the block level storage requests routed by the router.

6. The appliance of claim 2 wherein the router is adapted to store and forward received requests.

30   7. The appliance of claim 6 wherein the command and response processor is adapted to process received requests while the requests are temporarily stored for forwarding.

8. The appliance of claim 2 wherein the command and response processor is

35 adapted to retrieve information from the cache memory in response to identifying a request to access data previously stored in the cache memory.

5   9. The appliance of claim 8 wherein the router is adapted to conditionally forward a received command in response to operation of the command and response processor retrieving the information from the cache memory.

          10. The appliance of claim 2 wherein the command and response processor is
10   adapted to coalesce multiple block level storage write requests into a coalesced block level storage write request and wherein the router is adapted to forward the coalesced block level write request to a destination device in place of the multiple block level storage write requests.

15   11. A method operable in a network router comprising the steps of:
          receiving a block level storage request from a network communication
medium; and
          processing the received block level storage request in association with a cache memory local to the router.

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          12. The method of claim 11 further comprising:
          conditionally forwarding the received request to an intended destination device on a network communication medium in response to the processing in association with the cache memory.

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          13. The method of claim 11 further comprising:
          coalescing multiple received block level storage requests into a coalesced block level storage request; and
          forwarding the coalesced block level storage request to a destination device.

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          14. The method of claim 12 further comprising:
          locating data requested by a received block level storage request in the cache memory; and
          returning the located data to a requesting device in response to locating the
35   requested data,
          wherein the step of conditionally forwarding is operable to preclude forwarding of the received request in response to locating the requested data, and

5   wherein the step of conditionally forwarding is operable to forward the received request in response to failure to locate the requested data.

15. An iSCSI router comprising:

in inbound network interface for receiving iSCSI storage requests and for

10   returning responses to received iSCSI storage requests;

an outbound network interface for forwarding received iSCSI requests to a destination device and for receiving responses from the destination device;

a cache memory; and

a control element coupled to the inbound network interface, coupled to the

15   outbound network interface, and coupled to the cache memory and adapted to process iSCSI requests received on the inbound network interface in association with the cache memory and adapted to selectively forward processed iSCSI requests to a destination device via the outbound network interface.

20   16. The router of claim 15 wherein the control element further comprises:

a cache management element for storing write data supplied in a received request into the cache memory and for locating read data requested in a received request in the cache memory.

25   17. The router of claim 15 wherein the control element further comprises:

a request coalescing element for coalescing multiple received requests into a coalesced request,

wherein the control element is further adapted to forward the coalesced request to the destination device.

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18. An improved network router compatible with TCP/IP protocols and adapted for coupling to one or more host systems and one or more iSCSI compatible storage devices, the improvement comprising:

a SCSI command and response processor within the router to process iSCSI

35   commands and responses forwarded through the router; and

a cache memory within the router coupled to the SCSI command processor for caching data related to iSCSI commands and responses processed by the SCSI command and response processor.

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19. The improved router of claim 18 wherein the SCSI command and response processor is adapted to conditionally forward received iSCSI commands to a storage device based on processing of the iSCSI command in association with the cache memory.

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20. The improved router of claim 19 wherein the SCSI command and response processor is adapted to process iSCSI read requests by first attempting to locate requested data in the cache memory and wherein received iSCSI read requests are forwarded to a storage device if the requested data is not located by the processor in

15   the cache memory.

21. The improved router of claim 19 wherein the SCSI command and response processor is adapted to process iSCSI write requests by storing the associated write data in the cache memory.

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22. The improved router of claim 21 wherein the SCSI command and response processor is further adapted to coalesce data stored in the cache memory into a larger coalesced write request and is further adapted to route the coalesced write request to the storage device.